

These papers appeared at the international workshop on nonlinear  
Photonic Crystals at the Danish technical university 2321  
on Oct 25+26, 2001 Tech Univ of Denmark  
Kongens Lyngby

## Microstructured fibres: moulding the properties of light (invited)

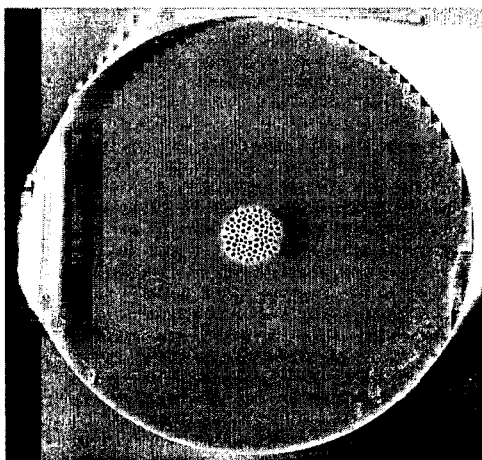
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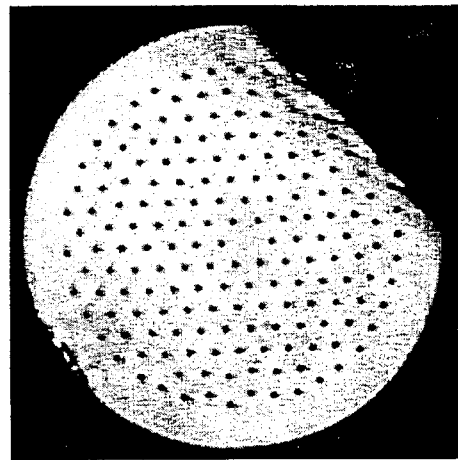
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The combination of wavelength-scale features and geometric flexibility offered by microstructured or holey optical fibres (HFs) leads to a significantly broader range of optical properties than is possible in conventional optical fibres (see the examples in Figure 1). These properties include single-mode guidance at all wavelengths, novel dispersion properties including broadband dispersion flattening and anomalous dispersion at visible wavelengths, mode size tailoring over three orders of magnitude, and many more. The optical properties of holey fibres are determined by the size, shape and locations of the air holes that define the cladding region. HFs can be made either from a single material (eg pure silica) or can be doped, which allows active fibre devices to be made.

Progress in this rapidly emerging technology will be reviewed, ranging from modelling and fabrication through to applications and practical devices.



(a)



(b)

Figure 1: Some typical holey fibre profiles: (a) A holey fibre with a small core (1.5 microns in diameter) provides tight mode confinement and enhanced nonlinearity (b) A large mode area holey fibre (core diameter approx 15 microns) for high power delivery.